Cities of Alcoa and Maryville Partner to Optimize Traffic Signals

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Have you noticed that you are getting to work a few minutes earlier? Or perhaps you are now able to travel through more than one green light at a time at what used to be a busy intersection? Well, it's not by coincidence. The reason is that Alcoa and Maryville have completed a traffic signal optimization study for 44 signalized intersections within both communities and motorists should be experiencing a significant difference in the traffic flow on the cities' most heavily traveled corridors.

The purpose of the overall study performed by Kimley-Horn and Associates, Inc. was to develop a multi-jurisdictional roadmap for the control of traffic signal and field devices in the future. This master plan will serve as a basis for plans and specifications to provide traffic signal communications for future traffic control, sharing of traffic information between the two cities, and the use of intelligent transportation system (ITS) field devices when needed.

One part of the study included traffic signal optimization to improve traffic signal timing along all the signalized corridors within Alcoa and Maryville. Now that the changes have been implemented, the results will be advantageous in three ways: reduction in traffic congestion and delays for Blount County motorists; reduction in vehicle emissions; and a reduction in fuel costs. A reduction of nearly 7 percent in fuel consumption was achieved for the entire 44 intersection system along with a 15 percent systemwide reduction of vehicle emissions.

Mayor Joe Swann stated, "One of the top five concerns of our residents stated in our annual citizen survey is the heavy traffic and backup coming and going to work during the week. Now, a driver can travel on Lamar Alexander Parkway and not hit a red light at every intersection. In addition, both Maryville and Alcoa will help to improve air quality by reducing the number of driver starts and stops at the lights."

Motorists will be most interested in the reduction of time to and from their destinations. An example of the travel time results can be seen at the US 129 Bypass/Broadway Avenue both northbound and southbound which show sizeable reductions. The northbound traffic heading in the direction of Alcoa Highway and Knoxville during the AM peak experiences a 72 percent reduction in delay, while the southbound traffic heading away from Knoxville and back to Alcoa/Maryville during the PM peak now experiences a 49 percent reduction in delay. The average savings in time is 10 minutes, 45 seconds. (Result average of both northbound/southbound and AM, mid-day, and PM peak period.)

Alcoa Mayor Don Mull remarked, "We are pleased to have received the funding making possible the improved traffic flow and emission reductions. I know the residents of Alcoa and Maryville that commute to Knoxville every day benefit from a shortened drive time and less gas used."

Other major corridors in the study were: Lamar Alexander Parkway, Hall Road/Washington Street; Louisville Road/Calderwood Street/Cusick Street; Foothills Mall Drive; Broadway Avenue (within the Maryville central business district.) Many branch streets that are a part of the 44 intersections were also adjusted to in order to increase the reduction in time at the larger, more heavily trafficked corridors.

Travel Time Study Results (Systemwide)

AM Peak Mid Day Peak PM Peak

	No. of Stops	Average Speed	Total Delay*	Travel Time*	No. of Stops	Average Speed	Total Delay*	Travel Time*	No. of Stops	
	35.4	24.1	1819.6	4685.7	46.6	21.2	2,316.2	4922.5	52.6	
	18.3	29.2	1184.4	3733.2	27.9	26.7	1412.6	3951.3	30.4	
	-17.1	5.1	-701.2	952.5	-18.7	5.4	-903.6	-971.2	-22.2	
	-48.3	21.1	**-38.5**	-20.3	-40.1	25.3	**-39.0**	-19.7	-42.2	

· measured in seconds

· AM/PM RATIO 70% WORK TRIPS/30% NON-WORK MID-DAY RATIO: 60% WORK TRIPS/40% NON-WORK TRIPS

The project is part of the Knoxville Regional Transportation Planning Organization's (TPO) Transportation Improvement Program (TIP) and was funded through the (CMAQ) Congestion Mitigation and Air Quality. CMAQ funds transportation projects and programs in nonattainment and maintenance areas. Blounty County has been designated as a nonattainment area for ozone emissions and both Maryville and Alcoa continue to research and implement programs designed to improve air quality. Both city governments use biodiesel fuel in their diesel trucks and equipment and have done so for almost two years. In addition, both Alcoa and Maryville are actively involved with local industries to assist with reducing both ozone emissions and particulate matter in the air.

"The optimization study came at a great time since the cost of gasoline continues to fluctuate.

The changes implemented at our major intersections will save our residents precious time in their busy lives as well as money at the gas station," stated Maryville City Manager Greg McClain.

Alcoa City Manager Mark Johnson echoed McClain's comments by saying, "This is such an improvement in drive times in and around Alcoa and Maryville's major traffic arteries. More importantly is continuing to work together to reach air quality attainment levels, benefiting all the citizens of Blount County."

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